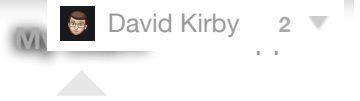




UNM LEARN

[Course Home](#) [Module 2 - Statistical Learning Theory](#)**Take Test: Quiz 2.2 Basic concepts of statistical learning theory**

Take Test: Quiz 2.2 Basic concepts of statistical learning theory

Test Information

Description

Instructions

Multiple Attempts This test allows multiple attempts.

Force Completion This test can be saved and resumed later.

QUESTION 1

0.0125 points

Saved

A linear estimator can be expressed as $y = \mathbf{w}^T \mathbf{x} + b$ where

- ☒ \mathbf{w} and \mathbf{x} are respectively the set of parameters to optimize and the observed data.
- ☐ \mathbf{w} and \mathbf{x} are respectively the observed data and the set of parameters to optimize.
- ☐ \mathbf{w} has to be optimized so the probability of error is the minimum possible.
- ☐ y is the desired output.

QUESTION 2

0.0125 points

Saved

The minimum mean square error criterion

- ☐ is intended to minimize the probability of error in a classification problem.
- ☐ minimizes the expectation of the quadratic distance between the estimator output and the desired output.
- ☐ minimizes the mean of the squared error between the desired output and the obtained output, among all training samples.
- ☒ None of the above.

QUESTION 3

0.0125 points

Saved

In order to optimize a set of parameters using the MMSE, we must compute the gradient with respect to them and then

- ☐ maximize it.
- ☒ find the set of values for the parameters for which the gradient is zero.
- ☐ minimize it.
- ☐ The gradient of the squared error is not differentiable.

QUESTION 4

0.0125 points

Saved

In the Minimum Mean Square Error Criterion, we must minimize the average of the squared error over a set of training data

- ☒ True
- ☐ False

QUESTION 5

0.0125 points

Saved

The least mean squares (LMS) is a simplification of the gradient descent solution of the MMSE. The simplification consists of

- ☐ changing the gradient by a fraction of the estimation error times the observation
- ☒ changing \mathbf{R} at instant n by $\mathbf{x}_n^T \mathbf{x}_n$ and \mathbf{p} by $\mathbf{x}_n y_n$
- ☐ changing the autocorrelation matrix and the cross-correlation vector by instant estimates.
- ☐ All of the above is true.

QUESTION 6

0.0125 points

Saved

▼ Question Completion Status:

output.

- ☒ True
☐ False

QUESTION 7

0.0125 points

Saved

The empirical risk is a sample average of the theoretical risk, which is measured with respect to test samples.

- ☐ True
☒ False

QUESTION 8

0.0125 points

Saved

The complexity of the machine can jeopardize the test error performance of a machine, so this complexity must be minimized.

- ☒ True
☐ False

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

Save All Answers

Save and Submit